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NCATS To Expand Researcher Access to Industry Molecular Compounds

Therapeutic development is a costly, complex and time-consuming process. In recent years, researchers have succeeded in identifying the causes of more than 4,500 diseases. But it has proven difficult to turn such knowledge into new therapies; effective treatments exist for only about 250 of these conditions.



HHS Secretary Kathleen Sebelius

To help combat the challenges, HHS Secretary Kathleen Sebelius and NIH director Dr. Francis Collins recently unveiled an NIH collaborative program that will match researchers with a selection of pharmaceutical industry molecular compounds to help scientists explore new treatments for patients. NIH's new National Center for Advancing Translational Sciences has partnered initially with Pfizer Inc., AstraZeneca and Eli Lilly and Co., which have agreed to make more than 20 of their compounds available for this initiative.

"This initiative is an investment not only in our researchers, but also in our nation," said Sebelius. "When American scientists have the tools and resources

SEE **MOLECULE ACCESS**, PAGE 6

'Pressure To Get It Right'

Biases Rife in Research, Ioannidis Says

By Susan Keown

Don't believe everything you read—whether the too-good-to-be-true promises of an ad in the back of a magazine or the research published in a highly respected journal.

"Most statistically significant findings are not real at all," said Dr. John Ioannidis, director of the Stanford Prevention Research Center. "They're just false positives."

In a recent seminar sponsored by the Office of Disease Prevention, NHLBI, NIAAA and NCI, Ioannidis discussed the biases in published biomedical research and suggested several potential solutions to the problem.

Many of these false positives are revealed

SEE **IOANNIDIS**, PAGE 4



Dr. John Ioannidis



Columbia's Dr. John C.M. Brust speaks at NIH.

Brust Discusses Neuroscience of Musical Literacy

By Susan Keown

Maurice Ravel, most famous for his orchestral work *Boléro*, was the victim of a cruel coincidence: Although a composer by vocation, a brain injury left him unable to compose. "My mind is full of ideas," he wrote, "but when I want to write them down, they vanish."

The cause of Ravel's problems was never definitively established, said Dr. John C.M. Brust,

SEE **BRUST**, PAGE 8



The NIH **Record** is published biweekly at Bethesda, MD by the Editorial Operations Branch, Office of Communications and Public Liaison, for the information of employees of the National Institutes of Health, Department of Health and Human Services. The content is reprintable without permission. Pictures may be available upon request. Use of funds for printing this periodical has been approved by the director of the Office of Management and Budget through September 30, 2012.

To receive alerts to our latest issue, send an email to listserv@list.nih.gov with the words "Subscribe NIHRECORD" in the message body.

NIH **Record** Office Bldg. 31, Rm. 5B41
Phone (301) 496-2125 Fax (301) 402-1485

Web address <http://nihrecord.od.nih.gov>

Editor

Richard McManus
Rich.McManus@nih.gov

Associate Editor

Carla Garnett
Carla.Garnett@nih.gov

Staff Writer

Jan Ehrman
Jan.Ehrman@nih.gov

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NIH...Turning Discovery Into Health

briefs

STEP Forum on 'Rethinking the Brain'

The staff training in extramural programs (STEP) committee will present a Science for All forum on the topic "Rethinking the Brain," on Tuesday, May 22, from 9 a.m. to noon in Lister Hill Auditorium, Bldg. 38A.

How is a teenager's brain different from an adult's brain? Scientific evidence suggests that brain development ends in early adulthood; however, the brain remains dynamic throughout life. Do we really lose it if we don't use it? Join us as we explore the intricate relationship between age, biology and environment in shaping brain structure, function and learning.

Professor, Author Roberto To Give DDM Seminar, May 24 in Masur

The Deputy Director for Management (DDM) announces the third DDM seminar of the 2011-2012 series "Management and Science: Partnering for Excellence." The event on Thursday, May 24 from 11 a.m. to 12:30 p.m. in Masur Auditorium, Bldg. 10, will feature Michael Roberto, author of *Know What You Don't Know* and leading authority on how to improve strategic decision-making and avoid hidden catastrophes. He will discuss "Leaders as Problem Finders."

Videocasting and sign language will be provided. Individuals who need reasonable accommodation to attend should call (301) 496-6211 or the Federal Relay Service at 1-800-877-8339. For more information about the series, visit www.ddmseries.od.nih.gov or call (301) 496-3271.

APAO Ethnic Food Fair, May 23

The NIH Asian & Pacific Islander American Organization's annual ethnic food fair will be held on Wednesday, May 23 from 11:30 a.m. to 1:30 p.m. on the Bldg. 31A patio. There will be a variety of food offerings by area restaurants, plus information tables by NIH and community organizations. Try your hand at calligraphy and learn to fold origami figures. APAO will donate a portion of the proceeds to the Children's Inn at NIH; participants are encouraged to make contributions, too. The event is open to the public. Every year, activities across the nation are organized during May to observe Asian Pacific American Heritage Month. For more information, contact Aaron Bell, (301) 451-7898 or bella@mail.nih.gov.

Chamber Singers Present Spring Concerts

The NIH Chamber Singers will welcome spring with concerts of choral music by composers whose last names begin with the letter B. Selections from the program include songs from some familiar "B's"—Bach, Beethoven and Brahms—but there are also compositions from others, including Bartok, Berger, Bernstein, Bright and Brubeck. There will also be a set of intricate arrangements of songs by the Beatles.

The concerts will be performed Saturday, May 12, 3 p.m., Praisner Library, 14910 Old Columbia Pike, Burtonsville, Md., and Wednesday, May 16 at noon in the atrium of the Clinical Research Center.

The concerts are free and open to all. For reasonable accommodation or further information, call (301) 594-7557.

Stetten Symposium Set, June 6

The Office of History at NIH will hold "History in the NIH—The 4th Annual Stetten Symposium" on Wednesday, June 6 from 12:30 to 5 p.m. in Wilson Hall, Bldg. 1. The symposium, open to all, is a progress report by the four current DeWitt Stetten fellows in the Office of History. Their presentations will explore biostatistics and biometry at NIH, the problem of Leber's hereditary optic neuropathy, Joseph Kinyoun (the founder of the forerunner of NIH/NIAID) and the origins of NIAAA and NIDA in the 1970s.

Each fellow will speak for 25 minutes, followed by 10-15 minutes of commentary by such NIH authorities as NHLBI acting deputy director Dr. Carl Roth, NIAAA acting director Dr. Kenneth Warren, NIAID senior advisor Dr. David Morens and NINDS neurologist Dr. Kenneth Fischbeck. A discussion period follows each commentary. For more information, contact Sejal Patel, (301) 451-9431 or patelss2@mail.nih.gov.

New NIH Administrative Intern/Fellow Rotation SharePoint Site

Since the August 2011 release of the NIH Administrative Intern/Fellow Rotation SharePoint site, key features have been added including new detailed views, FAQs and a useful links section. Effective May 2012, the site will continue to "go green" by including online versions of the rotation agreement and rotation evaluation forms that can be electronically routed between the intern, rotation supervisor and the intern program manager.

You can access news about these enhancements, site resources and new updates via the site home page at <https://ohr.od.nih.gov/rt/SitePages/Home.aspx>. Email your questions to internspssupport@mail.nih.gov.

nih record

Broadening Access to Vaccines Is Focus of LaMontagne Lecture, May 22

Universal access to immunization has been an elusive goal for many decades. A desire to overcome the obstacles to this goal fuels the GAVI Alliance, founded in 2000 with the aim of saving children's lives and protecting people's health by increasing access to immunization in developing countries.

"During the past decade, new vaccines have been rolled out in developing nations within a year of their licensure in the industrialized world—a far cry from past delays of 15 years or more," says Dr. Seth Berkley, CEO of the GAVI Alliance. Nevertheless, he notes, a child dies of a vaccine-preventable disease every 20 seconds, and 1 in every 5 children remains unimmunized.

Berkley will describe the challenges and successes of bringing lifesaving vaccines to people who live in the poorest countries during the 2012 John Ring LaMontagne Memorial Lecture sponsored by NIAID. Titled "Getting the Miracle of Vaccines to Those Who Most Need Them," the lecture will take place in Lipsett Amphitheater, Bldg. 10, on Tuesday, May 22 at 2 p.m.

A physician and epidemiologist, Berkley has devoted his career to improving international public health primarily through vaccines. Before joining the GAVI Alliance in 2011, Berkley was the founding president and CEO of the International AIDS Vaccine Initiative, a non-governmental organization dedicated to aggressively pursuing novel approaches to AIDS vaccine development.

"Overcoming the obstacles to universal access to immunization will require the political will to make vaccines a right for every child, innovations in vaccine delivery and support from finance ministries to prioritize vaccines in national budgets," he says.

The lecture honors contributions to NIH and public health made by LaMontagne during his 30-year career with NIAID. He earned international recognition for his distinguished leadership and accomplishments in fighting emerging and re-emerging infectious diseases.



Dr. Seth Berkley

Journalist Friedman To Give Rall Cultural Lecture, May 24

Journalist, columnist, author and three-time Pulitzer Prize winner Thomas L. Friedman will present the annual J. Edward Rall Cultural Lecture on Thursday, May 24, 3-4 p.m., in Masur Auditorium, Bldg. 10. His talk is "That Used to Be Us: How America Lost Its Way and How We Find Our Way Back."

Since joining the *New York Times* staff in 1981, Friedman has served as financial reporter, Beirut bureau chief, Jerusalem bureau chief, chief diplomatic correspondent, chief White House correspondent and international economics correspondent. He assumed his current role as the *Times's* foreign affairs op-ed columnist in 1995. Friedman has also authored six bestselling books, among them *The World Is Flat*.

In 2004, Friedman received the Overseas Press Club Award for lifetime achievement and the honorary title Order of the British Empire. In 2009, he was given the National Press Club's lifetime achievement award. He is also a member of the Pulitzer Prize board.

Seating for the lecture is on a first-come, first-served basis. The lecture will be broadcast live and later archived at <http://videocast.nih.gov>. There will be no overflow seating. For more information, or to request reasonable accommodation, contact Jacqueline Roberts at (301) 594-6747 or robertsjm@mail.nih.gov.

The Rall lecture is part of the Wednesday Afternoon Lecture Series. It honors the memory of Dr. J. Edward Rall, founder of the Clinical Endocrinology Branch (now within NIDDK) and scientific director of the National Institute of Arthritis and Metabolic Diseases, which is now represented by NIDDK and NIAMS. Rall recommended in 1984 that NIH add a cultural lecture to its Director's Lecture series.

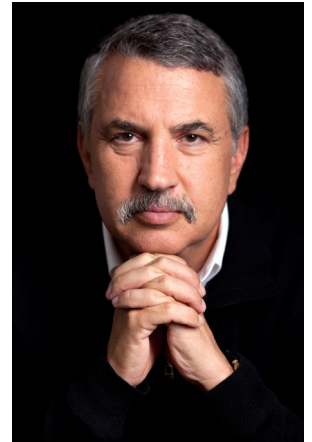
Rodgers Elected to American Academy of Arts And Sciences

What do NIDDK director Dr. Griffin P. Rodgers, singer/songwriter Sir Paul McCartney and U.S. Secretary of State Hillary Rodham Clinton have in common? All are new members of the American Academy of Arts and Sciences.

Rodgers, selected for research leading to the first effective therapy for sickle cell disease, is the only new member from NIH. The academy announced 220 new members, including some of the world's most accomplished scientists, scholars, writers, artists and business leaders, who will be inducted Oct. 6.

The AAAS is one of the nation's most prestigious honorary societies and a leading center for independent policy research. Current members include more than 250 Nobel laureates and 60 Pulitzer Prize winners.

Rodgers led research showing that the drug hydroxyurea boosts fetal and total hemoglobin, alleviating anemia, pain and other debilitating symptoms of sickle cell. More recently, he and collaborators found that a modified blood stem-cell transplant regimen reverses sickle cell disease in adults. Rodgers adds this academy honor to a long list, including his 2009 induction into the Institute of Medicine and the 2000 Arthur S. Flemming Award.



IOANNIDIS

CONTINUED FROM PAGE 1

Right:

"We need to move away from the requirement to make big promises," Ioannidis said. "Very little of what we do will be so lucky as to break new ground."

Below:

Among those attending Ioannidis' lecture were Dr. Susan Shurin (at microphone), acting NHLBI director, and behind her, Dr. Alan Schechter, chief of the Molecular Medicine Branch, NIDDK.

PHOTOS: BILL BRANSON



when larger-scale studies attempt to replicate the findings of smaller studies. This is true even for the gold standard of biomedical research, the randomized, controlled trial, said Ioannidis. One of every four such trials is refuted when a larger trial is conducted, he has found.

Ioannidis said that journal editorial policies are responsible for much of this trend. Editors want to publish research that is novel and will have a large impact on the field, which generally means papers that report very large, statistically significant effects.

Despite this overall trend, Ioannidis and colleagues have found a window of opportunity for publishing papers whose results don't fit this mold. He coined the phrase "Proteus phenomenon," after the ever-changing deity of Greek mythology, to describe this pattern: The first study published on a given topic typically shows a very large, significant effect; within the next year or so, a second paper is published showing the opposite. Usually, the large positive effects and neutral or negative effects in these papers are not seen again in subsequent publications on the topic.

Journals are also influenced by newsworthiness of results, which is linked to timeliness. Only a quarter of registered trials on the 2009 H1N1 flu outbreak are published, Ioannidis found. Those published in 2009 are in high-impact journals; as time passed, equal-quality studies on the outbreak appeared in more and more obscure journals.

In fact, Ioannidis and colleagues themselves had difficulty publishing their own paper describing this phenomenon. Ioannidis recalled what reviewers told them: "There is no need to publish that research. The sponsors know about it; they will tell the experts and they will make the right recommendations." He said, "I have a serious problem with that."

Ioannidis made nine recommendations for ways to overcome this and other problems of bias in biomedical research. Registration, which is already mandated for clinical trials such as those on H1N1, is a good first step. Registration ensures that trials don't become "lost" if they are never published. In this way, their results are potentially available to anyone interested in reviewing a more complete set of data on a topic, beyond the mostly positive published reports.



"Registration of clinical trials is one of the best ideas ever to appear in clinical research," said Ioannidis. He suggested expanding registration requirements to other types of biomedical research, as well.

Ioannidis also emphasized repeatability. "We have to find ways to reward repeatability," he said. Although most of the high-impact journals have data availability policies, they generally do not follow them. Working with *Nature Genetics*, one of the most high-quality and transparent of all biomedical journals, Ioannidis and several independent teams of researchers attempted to reproduce the results of 18 published microarray studies. Despite months of effort, only two of the papers were fully reproducible. Most of the problem was due to incomplete data availability.

Ioannidis noted that researchers are under pressure to produce earth-shaking results before they even begin a project, starting with their grant applications. To get funding, researchers have to play up the novelty and importance of the work they plan to do. Under the weight of the great promises they make, investigators often abandon studies whose results seem uninteresting or selectively report only statistically significant portions of their results.

"We need to move away from the requirement to make big promises," he said. "Very little of what we do will be so lucky as to break new ground." He suggested that instead of funding specific research projects, NIH and other funding bodies should support individual researchers with a track record of excellence.

"Maybe we should promise instead just to do our best," he said. 12



Richardson To Discuss Evidence-Based Medicine, May 17

Dr. Scott Richardson, campus associate dean for curriculum, Georgia Health Sciences University/University of Georgia Medical Partnership, will speak at NIH

on Thursday, May 17, from 10 a.m. to noon in Bldg. 45, balcony B.

He will discuss the various facets of evidence-based medicine—what it is, why we need it and how to practice it. He will engage in a discussion on how clinicians can learn to practice evidence-based medicine even if they have already completed their formal training. He also will examine what it would take to incorporate evidence-based medicine into the newer curricula of medical schools, illustrating how his teaching institution is doing this.

Richardson is an academic general internist at U Ga., where he is professor of medicine. His principal scholarly interests are in clinical epidemiology, evidence-based health care and medical education. He is a co-author of the book by Straus et al., *Evidence-based Medicine: How To Practice and Teach It*, Fourth Edition (2011). He is a member of the international evidence-based medicine working group, which authored the users' guides to the medical literature series in the *Journal of the American Medical Association*, now published in book form. Richardson continues to work on the challenges of integrating evidence into clinical decisions, particularly in clinical diagnosis. He also is working to incorporate evidence into the new curriculum at his institution and in medical education at all levels.

The seminar is sponsored by the Office of Disease Prevention, NIAAA and NCI. Registration is not required; seating is on a first-come, first-served basis. Sign language interpreters will be provided. Those who require reasonable accommodation to participate should contact Paris Watson at Paris.Watson@nih.gov or (301) 496-6615.

For more information, visit www.consensus.nih.gov/mindthegap.

Program Will Bring Top Early-Career Scientists from Quebec

NIH and the Fonds de Recherche du Quebec (FRQS) recently announced the NIH-FRQS Research Career Transition Award Program for early-career scientists. The program aims to foster collaboration between NIH and the Quebec research community by bringing an infusion of top talent from Quebec across all medical research disciplines. Quebec fellows will have the opportunity to jump-start their careers and broaden their horizons by training with top NIH research scientists.

FRQS will select, and financially support, up to six fellows for 2- to 3-year awards. Participating fellows will be encouraged to include sex or gender differences in their studies, as scientifically appropriate. They will receive additional mentoring under the auspices of the Intramural Program on Research on Women's Health (IPRWH) and the Office of Research on Women's Health. After returning to Quebec, fellows will be granted \$25,000 for laboratory start-up costs and assistance with finding permanent faculty positions.



Attending the NIH-FRQS ceremony recently were (from l) Alain Olivier, Dr. Janine Austin Clayton, Dr. Rémi Quirion, Dr. Esther Sternberg, Dr. Michael Gottesman and Julie Payette.

PHOTO: BILL BRANSON

A signing ceremony held in the Natcher Bldg. celebrated the official agreement of the new collaboration. Participants included NIH deputy director for intramural research Dr. Michael Gottesman; Dr. Janine Austin Clayton, acting ORWH director; Dr. Rémi Quirion, chief scientist of FRQS; and Julie Payette, Quebec government delegate for science and innovation.

Participants acknowledged Dr. Esther Sternberg, co-chair of the IPRWH, who has been working to bring this program to life since 2010. "Esther Sternberg has been the moving force at the NIH behind this agreement," said Gottesman. "Our hope is to be able to contribute to the best possible training that we can muster for fellows who come from Quebec, and in turn Quebec is providing talent and substantial resources."

Clayton echoed his enthusiasm: "We are so excited about the beginning of this wonderful strategic alliance."

Quirion reflected on his time as a postdoctoral fellow at the Clinical Center from 1980 to 1983. "The NIH is a fabulous place, and fellows will have the opportunity to work in this environment and get as much as they can from it. They can then bring their knowledge back to Quebec to begin fabulous careers."

Payette, former flight engineer for the space shuttle Endeavor and chief astronaut of the Canadian Space Agency prior to taking her current post at the Quebec office in Washington D.C., was pleased to attend the ceremony: "I congratulate the vision of the NIH, who understands that we are in a global world."

Members of the IPRWH steering committee, current NIH postdoctoral fellows from Quebec and Alain Olivier, director of the Quebec office in Washington also attended the signing ceremony.

Information about the award and other international partnerships can be found at www.training.nih.gov/international_career_transition_awards and www.fqrsc.gouv.qc.ca.



MOLECULE ACCESS

CONTINUED FROM PAGE 1

Above:

HHS, NIH and pharmaceutical partner leadership respond to journalists' questions about NCATS' new therapeutic discoveries program. They are (from l) Sebelius; NIH director Dr. Francis Collins; Michael Manganiello, patient representative; Rod Mackenzie, Pfizer Inc.; Don Frail, AstraZeneca; Jan Lundberg, Lilly; and NCATS acting deputy director Dr. Kathy Hudson.

PHOTOS: ERNIE BRANSON

to pursue the next great discovery, we all benefit. This makes our nation stronger, healthier and more competitive."

This innovative approach will leverage data that already has been collected on these molecular compounds as well as the collective power of researchers across the nation.

"Such visionary thinking is imperative if we want to take bold action to speed up drug development," Collins said.

Some compounds do not prove effective for the specific use for which they were developed. However, if additional research is conducted, some of these existing compounds may succeed for a different therapeutic use. A prime example is the drug azidothymidine (AZT), which failed to show efficacy against cancer, but was later found to be the first drug effective against HIV, the virus that causes AIDS.

The repurposing of AZT gave patient advocate Michael Manganiello a fighting chance after he was diagnosed with HIV. "A drug rescued from obscurity 25 years ago is the reason I can say that AIDS-related complications will most likely not be the cause of my death," he said. "What failed in one purpose may hold great promise for another."

The compounds for this new NIH program, called Discovering New Therapeutic Uses for Existing Molecules, have undergone significant research and development by industry, including safety testing in humans, making them prime candidates for further development. Using compounds that have previously been tested in humans provides a strong starting point for scientists and permits the process to move more rapidly.

"It's a win-win-win," Collins said. "It's a win for investigators who gain access to these compounds, for companies whose compounds get a new chance and most of all for patients, whose hopes for the discovery of new treatments are significantly advanced through this initiative."

In fiscal year 2013, NCATS will provide up to \$20 million to fund 2- to 3-year cooperative research grants for pre-clinical and clinical feasibility studies to test more than 20 compounds from industry partners for their effectiveness against a variety of diseases and conditions. For their part, the companies will provide successful applicants with access to the compounds and related data.

"We are committed to these compounds and we're encouraging the investigators to publish their work, which was part of the agreements. Our involvement is a reconfirmation of our commitment to open innovation strategies," said Don Frail, vice president of science within the new opportunities innovative medicines unit at AstraZeneca.

The pilot program incorporates innovative template agreements designed to streamline the legal and administrative process for partnering across multiple organizations. These template agreements reduce time and effort as well as enable greater participation than traditional partnerships.

"We got involved in this effort quickly in part because we wanted to set an example that we have to do things faster and not get caught up in endless discussions about legal agreements," said Jan Lundberg, executive vice president for science and technology and president of Lilly Research Laboratories. "We are here to serve patients, and in the end, we are all patients."

The template agreements also provide a roadmap for handling intellectual property used in or developed through the program. Participating industry partners will retain the ownership of their compounds, while biomedical research partners will own any intellectual property they discover through the research project with the right to publish the results of their work.

"This initiative gives us a chance to access, on a grand scale, the wonderful minds that we have out in the academic community," said Rod MacKenzie, group senior vice president and head of Pfizer PharmaTherapeutics research and development. "This kind of public-private partnership is exactly what we need as we create a new R&D environment."

"This program is just the first of what we hope will be many more NCATS-led efforts to pick up the pace of translational research," said NCATS acting director Dr. Thomas Insel.

For more information, visit <http://ncats.nih.gov>. 

Facilities has discussed the issue with the contractor responsible for housekeeping in Natcher. As a result, the staff will not start cleaning and buffing the lobby floors until after 7 p.m. on weekdays. ORF appreciates the customer feedback. Employee feedback regarding day-to-day interaction with staff and services is an invaluable resource to help ORF improve support to the NIH community. 🗣️

Ever wonder about some aspect of working at NIH? You can send us anonymous questions at www.nih.gov/nihrecord/index.htm (click on the Feedback icon) and we'll try to provide answers.

Feedback: On Thursday, Feb. 16, at the height of morning rush hour, why are more than a dozen dump trucks/construction vehicles traveling east on Cedar Ln., turning south on Rockville Pike, jamming the CVI entrance and snarling south-bound Rockville Pike traffic? It's like a parade! Don't campus construction vehicles have their own dedicated entrance/exit on Old Georgetown Rd. across from Suburban Hospital?

Response from the Office of Research Services and Office of Research Facilities: The South Dr. entrance was intended only to serve as a construction entrance and exit during the heaviest period of construction traffic for the Porter Neuroscience Research Center expansion. Once that period ended in October 2011, South Dr. was closed as a construction entrance and all truck traffic returned to its normal entrance, the Commercial Vehicle Inspection Facility on Rockville Pike. The CVIF was created to inspect commercial and construction traffic entering the NIH campus. Dump trucks and other commercial vehicles are using the appropriate entrance by entering campus via the CVIF.

Feedback: I appreciate the fact that NIH makes an effort to keep public spaces clean, but is it necessary to wash the floor of the Natcher Bldg. lobby every day, at a time of day when people are walking through the lobby? Every day, between 5 and 6 p.m., people walking through the lobby to get to the parking garage, ATM, conference rooms or building exit encounter a janitor who is washing or waxing the floor. It is clear that the janitor is not happy about the fact that people walk on his freshly washed or waxed floor, every day, nor do the people using the lobby appreciate having to walk on a wet or slippery floor. If the janitor has to come every day, could the cleaning be scheduled later, when fewer people are in the building? The 5-6 p.m. hour is prime time for departures from the office side of the building. Unless you're already in the conference center or are walking to another building on campus via the freight entrance, there is no way out of the building except via the lobby.

Response from ORF: The Office of Research



Scientist Addresses Community at RML

Dr. Guido van der Groen (l), who in 1976 helped identify the Ebola virus in Africa while working for the Institute of Tropical Medicine, addressed the audience during an Apr. 13 community presentation in Hamilton, Mont. Several high school students were among the nearly 300 people in attendance. Van der Groen answered questions afterward and encouraged the young people to "be vigilant" in pursuing their career interests. NIAID's Rocky Mountain Laboratories sponsored the event.

PHOTOS: HEATHER MURPHY

Hire a WRP Student for Summer

Need more help? Consider hiring a Workforce Recruitment Program (WRP) student for the summer. In support of the President's Executive Order 13548, "Increasing Federal Employment of Individuals with Disabilities," WRP provides a pipeline that will not only meet management's temporary needs during the summer, but also can be used to provide permanent hires to meet management's long-term succession-planning organizational goals.

WRP is a database resource for employers nationwide to identify qualified temporary and permanent employees from a variety of career fields—business, communications, engineering, science, computer science and administrative support. More than 2,600 highly motivated college students and recent graduates from 270 colleges and universities are available for selection.

Find more details about WRP online at www.wrp.gov. If you are interested in a student or have questions about the program, contact Sheila Monroe at Monroes@od.nih.gov or (301) 496-6504 or Kim Kirkpatrick at Kimberly.Kirkpatrick@nih.gov or (301) 451-0748.

Career Symposium Set, May 18

The NIH Office of Intramural Training & Education invites all NIH graduate students and postdoctoral trainees, both basic scientists and clinicians, to a career symposium on Friday, May 18 at the Natcher Conference Center and Lister Hill Auditorium from 8:30 a.m. to 5 p.m. The symposium provides information about scientific career options. Panel sessions cover academic, government, industry and non-profit career paths. More than 80 speakers will provide insights into their careers. To register, visit www.training.nih.gov.

BRUST

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Right:

Research seems to indicate that it is musical reading and writing, specifically, that can improve other cognitive skills. But Brust did not seem to think much of the idea of acquiring musical literacy purely for the cognitive benefits. “Forget it,” said Brust, a jazz saxophonist. “Musical literacy has its own rewards.”

PHOTOS: BILL BRANSON

who delivered a Great Teachers lecture at Clinical Center Grand Rounds recently. But there have been many reports since Ravel’s death of other people who have lost similar musical abilities following brain injury. Research on these and other individuals has shed light on disorders of musical literacy and the neurological processes involved in this skill.

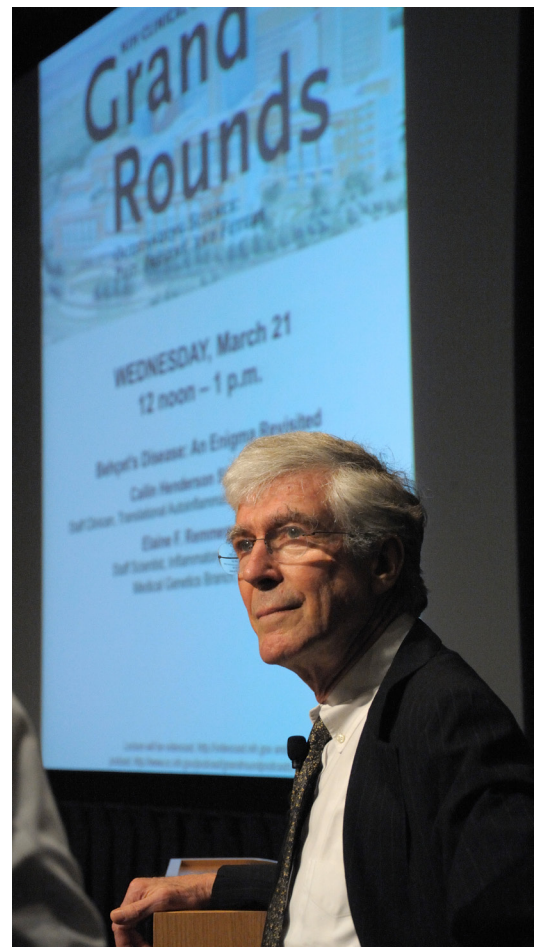
The processes we use to read, write and listen to music seem to be different than those we use for language, explained Brust, professor of clinical neurology at Columbia University College of Physicians and Surgeons. Brain-imaging studies have shown that different areas of the brain are activated in reading music versus reading words, for example, or listening to music versus listening to speech. While Ravel and some people with brain injury experience problems with both music and language, others, like the Russian composer Vissarion Shebalin, do not. After two strokes severely impaired Shebalin’s language abilities, he continued composing music, including a well-regarded symphony.

The various aspects of music—including melody, rhythm, meter and chords—are perceived by different brain circuits, explained Brust. This concept is reflected in case studies of individuals with disorders of musical literacy: Some affected individuals have only lost the ability to indicate pitch, but not rhythm, in musical notation; another case involved intact pitch-writing skills, but loss of the ability to write rhythm.

Emotion is another important component of music; the brain’s emotional processing functions are intertwined with musical perception. Some music is pleasurable, triggering activity in the brain’s reward system, whereas dissonant music can trigger the brain’s fear center, the amygdala.

Musical training influences how the brain is involved in listening to music and making music, explained Brust. For example, one study found that trained musicians tend to use the analytical left side of their brains to listen to music, while untrained people use the more holistic right brain to take in the same piece.

Research has also found a strong relationship between the brain’s processing of visual-spatial information and musical training. Brust mentioned the region of the brain known as Broca’s area—located on both sides of the head at the temples—that is usually activated when listen-



ing to speech or perceiving motion. However, in trained musicians only, this area is also activated when performing three-dimensional visual-spatial recognition tasks.

This type of evidence might help to explain why musical training seems to improve people’s visual-spatial skills, among other cognitive abilities, such as learning languages.

The most well-known version of the cognitive benefits of music is called the Mozart effect, which has spawned an entire industry of Mozart-for-babies products designed to increase infants’ intelligence. The study that coined this effect found that people who listened to 10 minutes of a Mozart sonata experienced a short-term boost in performance in spatial reasoning. Later research largely debunked the Mozart effect, explained Brust. It turned out that the temporary benefit conveyed by the music was probably due to emotional arousal, not the music per se.

Research seems to indicate that it is musical reading and writing, specifically, that can improve other cognitive skills. But Brust did not seem to think much of the idea of acquiring musical literacy purely for the cognitive benefits.

“Forget it,” said Brust, a jazz saxophonist. “Musical literacy has its own rewards.”

Agent Reduces Autism-Like Behaviors in Mice

NIH researchers have reversed behaviors in mice resembling two of the three core symptoms of autism spectrum disorders (ASD). An experimental compound, called GRN-529, increased social interactions and lessened repetitive self-grooming behavior in a strain of mice that normally display such autism-like behaviors, the researchers say.

GRN-529 is a member of a class of agents that inhibit activity of a subtype of receptor protein on brain cells for the chemical messenger glutamate, which are being tested in patients with an autism-related syndrome. Although mouse brain findings often don't translate to humans, the fact that these compounds are already in clinical trials for an overlapping condition strengthens the case for relevance, according to the researchers.

"Our findings suggest a strategy for developing a single treatment that could target multiple diagnostic symptoms," explained Dr. Jacqueline Crawley of the National Institute of Mental Health. "Many cases of autism are caused by mutations in genes that control an ongoing process—the formation and maturation of synapses, the connections between neurons. If defects in these connections are not hard-wired, the core symptoms of autism may be treatable with medications."

Crawley, Dr. Jill Silverman and colleagues at NIMH and Pfizer Worldwide Research and Development, Groton, Conn., reported their discovery Apr. 25 in the journal *Science Translational Medicine*.

"These new results in mice support NIMH-funded research in humans to create treatments for the core symptoms of autism," said NIMH director Dr. Thomas Insel. "While autism has been often considered only as a disability in need of rehabilitation, we can now address autism as a disorder responding to biomedical treatments."

Test Links Strains of Common Parasite to Severe Illness in Newborns

Scientists have identified which strains of the *Toxoplasma gondii* parasite, the cause of toxoplasmosis, are most strongly associated with premature births and severe birth defects

in the United States. The researchers used a new blood test developed by scientists at the National Institute of Allergy and Infectious Diseases to pinpoint *T. gondii* strains that children acquire from their acutely infected mothers while in the womb.

Pregnant women can become infected with *T. gondii* through contact with cat feces that contain infectious forms of the parasite or by eating undercooked meat. Women who become infected while pregnant may miscarry, give birth prematurely or have babies with eye or brain damage.

"If undetected or untreated, congenital toxoplasmosis can have serious consequences for a child's quality of life," noted NIAID director Dr. Anthony Fauci. "The findings from this study support the value of screening for toxoplasmosis to identify patients who could benefit from treatment."

Currently available blood tests can determine whether a person has ever been infected with any strain of *Toxoplasma* parasite. The experimental test developed at NIAID improves upon the older tests because it can detect the presence of strain-specific antibodies that distinguish infecting strains from one another.

The test was developed by Dr. Michael Grigg of NIAID's Laboratory of Parasitic Diseases and his colleagues. The new study was published online in *Clinical Infectious Diseases*.

Brain-Activated Muscle Stimulation Restores Monkeys' Hand Movement

An artificial connection between the brain and muscles can restore complex hand movements in monkeys following temporarily induced paralysis, according to a study funded by NIH.

In a report in the journal *Nature*, researchers describe how they combined two pieces of technology to create a "neuroprosthesis," a device that replaces lost or impaired nervous system function.

One piece is a multi-electrode array implanted directly into the brain that serves as a brain-computer interface. The array allows researchers to detect the activity of about 100 brain cells and decipher the signals that generate arm and hand movements. The second piece is a functional electrical stimulation (FES) device that delivers electrical current to the paralyzed muscles, causing them to contract. The brain array activates the FES device directly, bypassing the spinal cord to allow intentional, brain-controlled muscle contractions and restore movement.

The research team was led by Dr. Lee E. Miller, professor of physiology at Northwestern University's Feinberg School of Medicine. This new research moves beyond earlier work from his group showing that a similar neuroprosthesis restores monkeys' ability to flex or extend the wrist despite paralysis.

"With these neural engineering methods, we can take some of the important basic physiology that we know about the brain and use it to connect the brain directly to muscles," he said. "This connection from brain to muscles might someday be used to help patients paralyzed due to spinal cord injury perform activities of daily living and achieve greater independence."



Scientists have identified which strains of the Toxoplasma gondii parasite, the cause of toxoplasmosis, are most strongly associated with premature births and severe birth defects in the United States.

milestones



After 32 years of service to NIGMS, NIH and the scientific community, Dr. Warren Jones left behind his lunch bag—and a host of scientific legacies—in March to pursue his favorite hobbies.

NIGMS's Jones Hangs Up Many of His 'Hats'

By Emily Carlson

Despite the unseasonably warm temperature and sunshine, the NIGMS lunch crowd outside was thin—just Drs. Warren Jones and Ward Smith, two program directors from different parts of the institute. In 30 minutes, the two reminisced about their early days as students in chemistry labs, updated each other on news from their divisions and talked about Jones' retirement plans.

For decades, Jones has lunched with his NIGMS friends. "I have no expectations for who will be there or what we'll talk about," he said. "I just know that I'll learn something new about my colleagues. I'll really miss that when I retire."

After 32 years of service to NIGMS, NIH and the scientific community, Jones left behind his lunch bag—and a host of scientific legacies—in March to pursue his favorite hobbies. He said he'll be lucky to find time each week to play tennis, read, garden, bird-watch and volunteer. In between, he hopes to see the northern lights in Norway and meet some of the creatures of Madagascar.

While at NIGMS, Jones wore many hats, each important, according to his colleagues.

Scientific Advocate

As a program director who worked with grantees to monitor their projects and encourage their progress, Jones had a big impact on enzymology—the study of proteins that speed up cellular reactions. He convened special workshops to identify challenges in the field and implemented new funding opportunities to address those challenges.

With his Ph.D. in organic chemistry from the University of North Carolina at Chapel Hill and post-doctoral training by prominent chemists, Jones knew the science. And with 6 years of experience as a faculty member in the chemistry department at the University of Virginia, he was also attuned to the needs of the academic community. This background made him widely recognized and appreciated by enzymology researchers, said Dr. Michael Rogers, director of the NIGMS Division of Pharmacology, Physiology, and Biological Chemistry (PPBC).

"Warren came to epitomize the field of enzymology because he has been so supportive and influenced so many generations of enzymologists,

including myself," added NIGMS colleague and former grantee Dr. Barbara Gerratana.

"I'm proud to have served the scientific community as they interacted with NIH," Jones said, "and I've enabled people to do good science."

Policy Developer

Others say that Jones had a big impact on establishing new funding policies. As the NIGMS director's special assistant for legislative affairs, he was responsible for tracking and informing institute staff of relevant issues. He honed his legislative expertise by spending a year working on Capitol Hill as a legislative fellow and 6 months working in the HHS Office of the Assistant Secretary for Legislation.

Among the policies he spearheaded was one on tuition reimbursement designed to slow the loss of student training positions due to rapid tuition cost increases. He also developed a funding guideline that flags applications from well-funded laboratories for additional review by the NIGMS advisory council. In February, NIH announced plans to implement an approach similar to the NIGMS one.

"Both of these policies were controversial when they were instituted, but over time the scientific community has recognized their benefits," said Dr. Judith Greenberg, the institute's acting director and Jones' colleague for nearly 30 years.

In 2007, Jones led a scientific community-based assessment of the Protein Structure Initiative, a program in which NIGMS had invested \$580 million over 7 years to facilitate the determination of protein structures.

"This assessment was an opportunity for evaluation and solid solutions for moving forward with the program to best meet the needs of the scientific community," explained Jones.

Mentor

As chief of the PPBC Biochemistry and Biorelated Chemistry Branch since 1994, Jones hired a number of program directors. He is proud of their accomplishments, but they may be even prouder to have had him as a mentor.

"I personally appreciate his work with me, his help understanding the job and his encouragement to succeed," said Dr. Peter Preusch, whom Jones hired in 1992 and who now is a branch chief in another NIGMS division.

As part of an NIGMS tradition, Preusch wrote humorous poetry about his former boss that he read at Jones' retirement party.

"People may think work parties are trivial," said Jones speaking of his own farewell, "but they're part of the framework that holds us together. Just

like the lunches, they give us all a chance to get to know each other better and ultimately make our professional interactions easier.”

Jones added, “It’s hard to leave, but I am looking forward to my new opportunities.”

So with retirement, he exchanged his many work hats for a tennis visor, a birding fedora and a beret to wear when visiting his family in France. Beyond his hobbies, he said, “I’m just happy not having anything in particular that I need to do.”

Retired Science Writer Bennett Mourned

Science writer Barbara “Bobbi” Bennett, 70, who retired in late 2002 after a 39-year career at NIH, died Apr. 18 after a brief illness.



Bennett arrived at NIH in 1963 with a B.A. in chemistry from Immaculata College in her native Pennsylvania. She spent 11 years as a lab technician, first at the Clinical Center’s blood bank and then at NCI’s immunology branch. She then became a science writer for the last 28 years of her NIH career.

“I had reached an invisible ceiling in the lab, beyond which you could go no further without an advanced degree,” she recalled, in an *NIH Record* retirement story. Having been editor of both her high school and college newspapers, Bennett was hired by NIAID’s information office as a writer.

She left NIH briefly in 1979 to work at what was then the National Bureau of Standards, then returned to a writing job at the then-National Institute of Dental Research. After a year at NIDR, she joined the main NIH communications office in Bldg. 1, where she spent most of the rest of her career.

In the 1980s, Bennett organized a series of science writers seminars, designed to acquaint reporters with NIH scientific issues and expertise. Helping her select topics and speakers was Dr. Alan Schechter, chief of the Molecular Medicine Branch, NIDDK, who recalls, “[Bobbi] was particularly skilled in presenting scientific and medical advances to the press in a balanced, objective manner. Representatives of the major media clearly valued these events.”

Bennett served briefly as an information official in the nascent human genome office in OD, and

eventually rose to chief of the Science Communications Branch in the Office of Communications and Public Liaison. In 1996, she launched a consumer health publication that is still published today and distributed nationwide.

She once said of her NIH career, “I always felt this was a great place to work because we’re helping people. My greatest satisfaction has been helping people and their loved ones with health problems. That’s something we must never forget. It’s why we’re here.”

Survivors include her husband, Herbert Stanton Bennett; a niece, Catherine Yohe, and two nephews, Martin Plocinik and Christopher Plocinik; and many other family and friends.

Contributions in Bennett’s memory can be made to So Others Might Eat, 71 O St., NW, Washington, D.C. 20001 or to St. Jane Frances de Chantal Catholic Church, 9601 Old Georgetown Rd., Bethesda, MD 20814.



NIAID’s Mercer Dies

Stephanie Mercer, a support assistant with NIAID’s Division of AIDS (DAIDS), passed away unexpectedly on Apr. 1 at her home in Bethesda. She was 28 years old.

Mercer was born and largely raised in Biloxi, Miss., before moving to Forsyth, Ga., with her family in 1996. She graduated valedictorian of her high school class in 2001 and earned dual bachelor’s degrees in history and political science from Wesleyan College in 2006.

In 2008, Mercer joined NIAID to work in the office responsible for overseeing policy and management for grants and contracts within DAIDS. She provided administrative support for the division’s Therapeutic Research and Basic Sciences Programs.

“Stephanie was a very dedicated employee who took advantage of every opportunity to learn more,” said Terri Holmes, Mercer’s supervisor. “Not only was she interested in learning about her position, she was interested in the people and how things worked here at NIH.”

At the time of her death, Mercer had nearly completed her M.B.A. at Marylhurst University near Portland, Ore., and was slated to graduate in June. Known for her compassion and willingness to serve, Mercer planned to join the Peace Corps and begin a career in legal justice.

“Stephanie was a vibrant person with many interests and goals,” said Dr. Carl Dieffenbach, director of DAIDS. “She was valued in the office not only for her outstanding work, but for her friendly, outgoing manner. When someone so young, with so many dreams, dies, the loss is very deeply felt. Her smile and stories will be greatly missed.”

Mercer is survived by her parents, David and Annette (Handler) Mercer; sister, Jessica Mercer; brothers, David Mercer II and Dwayne Mercer; and grandparents, Mickey and Tootie Mercer, Donna Kay Handler and Dixie Schankin.—
Tasheema Prince 📧

Earth Day Draws Kids to Lawn of Bldg. 1

PHOTOS: ERNIE BRANSON

NIH observed Earth Day on Apr. 26, the same day that several parts of NIH held their own individual versions of Take Your Child to Work Day.

Under tents erected on the lawn of Bldg. 1, children and parents/guardians could learn about wildlife, conservation, eco-friendly workplace initiatives, the beneficial aspects of insects and the significance of tree rings. Free tree seedlings were also given away.

NIH used the occasion to reveal winners in the annual "What Is IT? contest. The 2012 version of the competition, sponsored by the NIH Environmental Management System, attracted some 115 responses, of which about 44 correctly used the two-word scientific name of the organism—*Panax quinquefolius*.

According to contest sponsors, there were many submissions for American ginseng/ginseng/*Panax ginseng*, "but since the rules specifically stated that we needed the scientific name, they have been excluded. There were several guesses for ginger, mandrake root and a few other items."

The names of those who guessed correctly were displayed on a poster at the Earth Day observance.

American ginseng is native to the eastern U.S. and Canada and is sometimes cultivated in China. Other species of plants referred to as ginseng with different medicinal properties are native to Siberia and Asia. Look for more information about the IT biodiversity organism at <http://nems.nih.gov>.



Above, children and their parents/guardians take advantage of Earth Day exhibits on the lawn of Bldg. 1. Below, left, the annual tree giveaway attracted many patrons, as did a visit by the NIH Federal Credit Union mascot KC (right), who was part of many photo opportunities.



Above (l), visitors view insects such as bedbugs at varying magnifications. At right, Martha Blalock of ORS's Division of Medical Arts greets people at her "green team" table. Below (l), a youngster learns how smoke detectors work. At right, ORF's Jim Carscadden points out how rings indicate a tree's age.

